Nidec OKK Corporation

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Nidec OKK to Launch 5 Axis Horizontal Machining Center HX500

- A high-capability processing machine that boasts OKK's traditional high rigidity, and best-in-class space efficiency and rapid traverse speed
- A model to streamline and consolidate the machining of complex and diverse small components for aircraft, EV, robot and so on.

Nidec OKK Corporation ("Nidec OKK" or the "Company"), a Nidec Group company, announced today that it will launch a new 5 axis horizontal machining center HX500, on September 22.

Nidec OKK's
5 Axis Horizontal Machining Center HX500

Nidec OKK has developed HX500 to meet the needs for the high-performance machining of increasingly accurate and complex aircraft, EV, and robot, and other components. With the Company's long-nurtured, highly rigid body structure, combined with a direct-drive-motor-driven high-speed two-axis table and a high-speed ATC[*1], HX500 has successfully reduced cycle time. In addition, to address chip issues that affect machining operations' accuracy, HX500 adopts a inverted table mechanism. By dropping chips onto its central trough directly and discharging them quickly, this new model can withstand long hours of machining. Other notable features include a class-leading compact footprint[*2] installation space despite a □500mm-size pallet.

Prior to launching HX500 globally, Nidec OKK will exhibit this new product at the Exposition Mondiale de la Machine Outil (EMO2025), which will be held in Germany from September 22 – 26.

HX500's main features:

High rigidity to realize high-speed, high-precision machining

In addition to its solid body structure, HX500 uses a dual-disk clamping mechanism to firmly fix

the trunnion table. By adopting direct-drive motors for its A axis (tilt) and B axis (slewing), and a twin drive axis for its Z axis, this product realizes a fast-forwarding speed of 65m/min. for each of its X, Y, and Z axes, a rotating speed of 50min^{-1} for its A axis, and a fast-forwarding rotation frequency of 100min^{-1} for its B axis. HX500 significantly shortens the non-cutting time with its high-speed ATC, while being capable of performing high-speed machining with its main axis (maximum rotation speed: 15,000min^{-1}), to reduce the total cycle time.

Outstanding chip-removing capability to thoroughly support machining accuracy

By removing chips with its tilting cover free of flat section and assisted by coolant flow, HX500 guides chips into its central trough to prevent them from accumulating. Further, with its expanded tilting range of the A axis: -210° to +30°, HX500 can machine inverted workpieces continuously, while its improved chip-removing capability ensures a stable high-accuracy machining.

Best-in-class-level space efficiency suitable for a variety of production sites

With its installation area of only approximately 15m^2 (2.6 x 5.62m), HX500 boasts a best-in-class-level compactness. This new model fits easily into narrow production spaces, and functions flexibly under diverse production environments.

User-friendly design for better work efficiency

Utilizing Nidec OKK's unique APC[*3] mechanism to achieve its pallet height in the setup station set to 1,050mm, HX500 reduces operators' workload, offering both an improved chip-removing capability and a comfortable work environment. Further, the product's internal camera (OP) supports the visualization of areas to be machined.

To enable efficient maintenance, HX500 has mechanical units centralized, with a maintenance function displayed on its operation panel. Thus, operators can check, record, and manage history of work items on HX500, which provides timely warnings and alerts to notify operators.

Ecofriendly energy efficiency

HX500 is equipped with an ECO sleep function, which automatically switches the machine to an energy-saving mode after a certain length of idle time. This function turns off HX500's servo motors and chip conveyor to save electricity. In addition, for its interior, HX500 adopts energy-saving, luminance-efficient, and long-life LED lamps. Furthermore, with the use of an inverter-controlled oil cooler, this new product minimizes its oil's temperature fluctuation range and operates only, when necessary, to curb unnecessary energy consumption.

Main specifications of HX500, 5 Axis Horizontal Machining Center

Movement	X axis	mm	700
	Y axis	mm	800
	Z axis	mm	780
	A axis	deg	-210 to +30
	B axis	deg	360
Table	Working face	mm	500 x 500
	Max. load dimensions	mm	φ630 x H400
	Max. load mass	kg	350 (OP: 500)
Main axis rotating speed		min^{-1}	100 - 15,000 (OP: 100 - 20,000)
Main axis output (15%ED/30min./constant)		kw	37/26/18.5
Main axis end		-	7/24 taper No.40 double-side constraint
Fast-forwarding speed	X, Y & Z axes	mm/min	65,000
	A axis	min^{-1}	50
	B axis	min^{-1}	100
Tools contained		tool	60
Max. tool diameter		mm	φ75 (φ170 when the adjacent pot is empty)
Max. tool length		mm	430
Max. tool mass		kg	12*4
Required floor surface		mm	2,600 x 5,620*5

*1. ATC = automatic tool changer

*2. Comparison in footprint of horizontal five-axis machining centers with a pallet size of □500mm

*3. APC = automatic pallet changer

*4. At a slow slewing speed

*5. Includes the OP lift-up conveyor.

For more details on the above product, please contact Nidec Machine Tool Corporation's Machining Center Department by submitting this inquiry form. Thank you.

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